CENTERS FOR DISEASE CONTROL

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

February 22, 1985 / Vol. 34 / No. 7



*Epidemiologic Notes and Reports*

## Measles on a College Campus — Ohio

Between January 15, and February 9, 1985, 12 confirmed cases of measles among students at The Ohio State University have been reported to the Ohio Department of Health. Two cases have been serologically confirmed. The index case is a senior student who acquired measles while traveling to London and Sierra Leone between December 8, 1984, and January 5, 1985. His rash onset was January 15; he subsequently infected four additional students. To date, students in one fraternity, one sorority, and three dormitories have been infected. In addition, several students in a brother fraternity at neighboring Miami University of Ohio have been exposed to a potentially infectious student from The Ohio State University.

The student health service, assisted by the Ohio Department of Health, has initiated several control measures, which include: (1) holding voluntary vaccination clinics in affected dormitories and at the student health clinic; (2) publicizing the outbreak on campus and in the surrounding community; and (3) increasing surveillance on campus and in the surrounding community. To date, 500 doses of vaccine have been administered to the student body, which consists of approximately 50,000 students. Additional clinics are planned for fraternity and sorority members.

*Reported by DI Charles, MD, Director of Student Health Svcs, FW Smith, MD, Chief of Preventive Medicine, RJ Spillman, PhD, Vice Provost for Student Affairs, The Ohio State University, Columbus, TJ Halpin, MD, State Epidemiologist, Ohio Dept of Health; Div of Immunization, Center for Prevention Svcs, CDC.*

**Editorial Note:** Measles outbreaks on college campuses have been reported with increasing frequency in recent years (*1*). In 1980, 1.5% of all reported cases occurred on college campuses, compared with 19.8% of all cases reported in 1983. In 1984, one large outbreak in New Hampshire involved 29 students or their family contacts at Dartmouth College, the community, and patients and staff at the community hospital (*2*). The current outbreak has already involved three generations, and additional spread seems likely.

The propensity of measles to spread among college students is related to several factors, the most important of which include: (1) many college-aged students may have missed measles vaccination in the first years following licensure of measles vaccine; (2) college students tend to congregate in large groups (e.g., dormitories, fraternities and sororities, and social and sporting events); and (3) many colleges and universities lack immunization requirements. Since approximately 5%-15% of college-aged individuals are currently susceptible to measles when tested serologically (*4*), college campuses effectively become a gathering place where large pools of susceptibles congregate. Any introduction of measles virus is likely to spread easily in such a susceptible population.

Measles outbreaks on college campuses are costly and disruptive. It is estimated that the Dartmouth outbreak cost over $30,000 to control (*2*). The direct costs of controlling the 1983 outbreak at Indiana University at Bloomington exceeded $225,000 (*1*).

*Measles – Continued*

Because it is more cost-effective to prevent measles outbreaks than to attempt to control them (*1*), in May 1983, the American College Health Association adopted a preadmission immunization policy recommending that, by September 1985, colleges and universities require all students born after 1956 to present documentation of immunity to measles and other vaccine-preventable diseases before matriculation. A similar recommendation was made in 1980 by the Immunization Practices Advisory Committee (*5*). Several universities have already implemented such policies. In Mississippi, students registering for the first time at state-supported 4-year colleges and universities are required to furnish proof of immunity to measles and rubella. Currently, neither The Ohio State University nor the other affected colleges in Ohio have immunization requirements for matriculating students.

*References*

1. CDC. Measles outbreaks on university campuses—Indiana, Ohio, Texas. MMWR 1983;32:193-5.
2. CDC. Measles—New Hampshire. MMWR 1984;33:549-54, 559.
3. Bart KJ, Stenhouse DH. Measles and rubella on college campuses: the need to act. J Am College Health 1983;32:58-62.
4. Amler RW, Kim-Farley RJ, Orenstein WA, Doster SW, Bart KJ. Measles on campus. J Am College Health 1983;32:53-7.
5. CDC. Rubella—United States, 1977-1980. MMWR 1980;29:378-80.

## Rabies Postexposure Prophylaxis with Human Diploid Cell Rabies Vaccine: Lower Neutralizing Antibody Titers with Wyeth Vaccine

On February 16, 1985, Wyeth Laboratories recalled Wyeth human diploid cell rabies vaccine (WYVAC™) from the market. This resulted from two postlicensure studies of antibody responses after postexposure prophylaxis with human diploid cell rabies vaccine (HDCV) conducted by CDC over the last 6 months. The studies—one, a passive surveillance system, and the other, a randomized prospective study—demonstrated that not all individuals receiving postexposure prophylaxis with Wyeth Laboratories' HDCV had antibody titers acceptable by the CDC criterion* and that antibody titers after rabies postexposure prophylaxis with Wyeth HDCV were lower than those with Merieux HDCV (IMOVAX™).

In the passive surveillance system, sera were examined from 39 persons (in four states) who had completed postexposure prophylaxis with rabies immune globulin (RIG) and five doses of HDCV; 22 had been vaccinated with Merieux vaccine, and 17, with Wyeth vaccine. Two of the 17 Wyeth vaccine recipients had an inadequate titer by the CDC criterion (*1,2*); one had no detectable titer. Three additional persons had low titers (acceptable by CDC's criterion but not by the World Health Organization's criterion). In contrast, all 22 recipients of Merieux vaccine had adequate titers by both criteria.

The reason for some low responses after postexposure administration of Wyeth HDCV is unknown. The product has consistently met all applicable release standards, and the failures could not be attributed to a single vaccine lot. Certain host factors may have contributed to the poor response. The median age of the five poor responders to Wyeth vaccine was 42

*At present, CDC considers a neutralizing antibody titer that produces complete inhibition in the rapid fluorescent focus inhibition test at 1:5 dilution or greater (1:11 or greater by the Reed-Muench method) an acceptable response to immunization (*1*). The World Health Organization considers 0.5 IU/ml or greater (*2*) an acceptable response (approximately equivalent to 1:56 by the Reed-Muench method or complete inhibition at the 1:25 dilution).

*HDCV — Continued*

years, compared with 21 years for the responders. One low responder was a 42-year-old person with epilepsy on chronic phenytoin therapy; phenytoin has inhibitory effects on some immune functions (*3*). The individual who showed no detectable neutralizing antibody after prophylaxis with Wyeth vaccine was a healthy but obese (6 ft., 275 lbs.) 32-year-old male who received all injections in the buttocks. Two of the three low responders also received their vaccine in the buttocks.

While the surveillance program was being conducted, a prospective study was undertaken. The study participants received rabies postexposure prophylaxis of RIG with five doses of either Merieux or Wyeth vaccine of similar potencies. Titers in the Merieux group were significantly higher (Table 1), although all persons in both groups had acceptable titers 2-4 weeks after completing prophylaxis (*4*).

*Reported by C Langkop, R Martin, DVM, Illinois Dept of Public Health; M Catalano, MD, Montefiore Hospital and Medical Center, New York City, A Porter, Southampton, C Trimarchi, New York State Dept of Health; J Jarvis, Emory University School of Medicine, Atlanta, E Weir, T McKinley, RK Sikes, DVM, State Epidemiologist, Georgia Dept of Human Resources; D Zeidner, MD, A Bowman, J Dennehy, MD, C Rudy, G Stover, R Leipold, MD, T Royer, MD, M Ryan, MD, G Stover, S Toor, MD, T Martin, MD, Geisinger Medical Center, Danville, J Maksimak, MD, RH Kaiser, MD, G Lattimer, MD, M Hart, C Sinner, Divine Providence Hospital, Williamsport, B Jones, DVM, E Witte, VMD, C Hays, MD, State Epidemiologist, Pennsylvania State Dept of Health; Office of Biologics, Research, and Review, Center for Drugs and Biologics, US Food and Drug Administration; Div of Viral Diseases, Center for Infectious Diseases, Div of Field Svcs, Epidemiology Program Office, CDC.*

**Editorial Note:** Annually, approximately 20,000 people receive rabies postexposure prophylaxis with HDCV in the United States (*5*). Since the early 1980s, when duck embryo vaccine was replaced by the more immunogenic HDCV, no person has developed rabies after having received the recommended postexposure prophylaxis of RIG and vaccine. Until the current report, data showed that Wyeth HDCV administered intramuscularly induced acceptable antibody levels.

The present low responses in some individuals may be due to both intrinsic differences in the two vaccines and accompanying host factors. Wyeth HDCV is a subunit vaccine, disrupted with tri-(n)butyl phosphate and further inactivated with beta-propiolactone, while Merieux HDCV is a whole virus vaccine inactivated with beta-propiolactone. Other factors, including older age, receipt of mildly immunosuppressive medications and administration of the vaccine into the buttocks, may also have contributed to the lower responses. Injections in the gluteal region will almost always be delivered into fat (*6*). It is not known whether there is a difference in absorption of the two types of HDCV when administered by this route. It has re-

**TABLE 1. Rabies neutralizing antibody titers,* by vaccine and days after the start of treatment with rabies immune globulin and the first of five doses of HDCV**

| | Days 7-8 titer† (range) | Days 9-10 titer (range) | Days 14-15 titer (range) | Days 49-63 titer (range) |
|---|---|---|---|---|
| Merieux HDCV n = 43 | 1:11 (1:8-1:320) | 1:50 (1:8-1:280) | 1:800 1:40-1:2200) | 1:1200 (1:280-1:5400) |
| Wyeth HDCV n = 23 | 1:11 (neg.-1:45) | 1:13 (1:7-1:280) | 1:210 (1:13-1:1200) | 1:280 (1:70-1:1400) |
| p value§ | NS | < 0.05 | < 0.001 | < 0.001 |

*Titers obtained by Reed-Muench interpolation of rapid fluorescent focus inhibition test.

†Median titer for group.

§Differences between two vaccine groups, Kruskal Wallis Test.

*HDCV – Continued*

cently been recognized that administration of hepatitis B vaccine in the gluteal area probably results in a poorer response than vaccination in the deltoid (*7*). It is recommended that all adult immunizations be administered in the deltoid region (*8,9*); the deltoid area is the preferred site for HDCV vaccination. The gluteal area remains an acceptable site for large volumes of RIG. HDCV and RIG should never be administered in the same anatomic sites.

One 1.0-ml intramuscular booster with Merieux HDCV in the deltoid area is recommended, based on review of available information, for all persons who have been potentially exposed to rabies since October 15, 1984, and who have received postexposure prophylaxis with Wyeth HDCV (unless sera obtained after postexposure prophylaxis demonstrated an acceptable antibody titer). Merieux HDCV can be obtained by calling 800-327-2842. Anyone currently receiving Wyeth vaccine should complete the course with Merieux vaccine and does not require an additional booster. Serologic testing is recommended if a systemic allergic reaction (serum sickness or urticaria) occurred during previous administration of postexposure prophylaxis. In that case, an acceptable serologic response obviates the need for a booster vaccine dose. Serum testing continues to be indicated if a patient who received postexposure prophylaxis with HDCV is immunosuppressed (by diseases or medications) (*1*). State health departments can be contacted for the addresses of laboratories where serologic testing is available.

Wyeth vaccine administered preexposure and in the recommended 1.0 ml intramuscular doses (three injections) has been effective in inducing antibodies. Based on currently available information, persons so vaccinated need neither serologic testing nor booster doses of HDCV, except for those select groups previously identified (*1*). In the event of future exposure to rabies, persons who have received preexposure prophylaxis with either type of HDCV should receive two 1.0-ml intramuscular booster doses of HDCV (one each on days 0 and 3), as is currently recommended (*1*).

*References*

1. ACIP. Rabies prevention—United States, 1984. MMWR 1984;33:393-402, 407-8.
2. WHO Expert Committee on Rabies. Seventh Report. World Health Organization Technical Report Series 709, 1984:28.
3. Grob PJ, Herold GE. Immunological abnormalities and hydantoins. Brit Med J 1972;2:561-3.
4. CDC. Unpublished data.
5. Helmick CG. The epidemiology of human rabies postexposure prophylaxis, 1980-1981. JAMA 1983; 250:1990-6.
6. Cockshott WP, Thompson GT, Howlett LJ, Seeley ET. Intramuscular or intralipomatous injections? N Engl J Med 1982;307:356-8.
7. CDC. Unpublished data.
8. ACIP. General recommendations on immunization. MMWR 1983;32:1-8, 13-7.
9. Committee on Immunization, Council of Medical Societies, American College of Physicians. Guide for adult immunizations. 1985:1.

## Update: Influenza Activity — United States

For the week ending February 16, 1985, 11 states (Florida, Hawaii, Nebraska, New Hampshire, New Mexico, Oklahoma, Pennsylvania, South Carolina, South Dakota, Texas, and Virginia) and the District of Columbia reported widespread outbreaks of influenza-like illness, and 17 states reported regional outbreaks.

Trends of influenza activity are represented in Figure 1. Family physicians who report weekly to CDC noted an average of 9.7 cases of influenza-like illness for the reporting week ending February 6, compared with the average of 6.6 cases at the beginning of January.

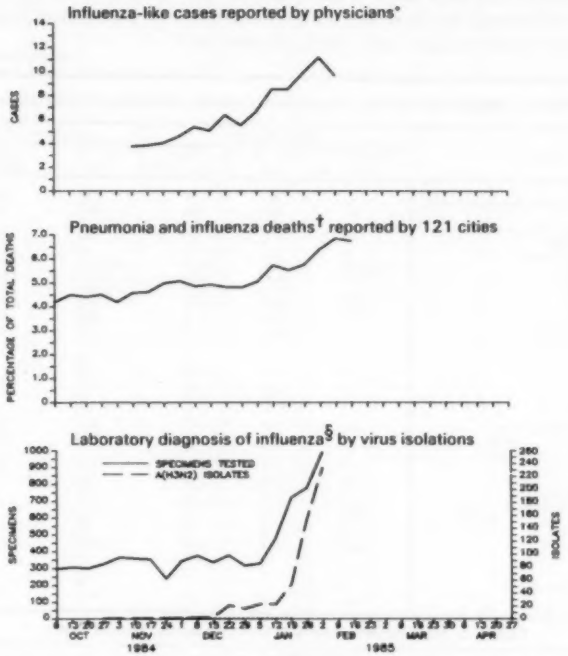
*Influenza — Continued*

Of total deaths reported from 121 U.S. cities, the percentage associated with pneumonia and influenza (P&I) was 6.8% for the week ending February 16 and 6.9% for the preceding week. This compares with recent seasons when the P&I percentage exceeded 6%: in 1981, the P&I percentage peaked at 6.9%, and in 1976, at 7.7%. On both occasions, many outbreaks of influenza associated with type A(H3N2) strains were in progress.

The total number of type A(H3N2) virus isolates reported to CDC from the network of WHO Collaborating Laboratories in the United States has increased sharply for the reporting weeks ending January 26 and February 2. Including recent reports from Maine and Vermont, influenza type A(H3N2) isolates have so far been reported from 44 states. Type B isolates have accounted for only nine of the 707 isolates reported by the collaborating laboratories.

*Reported by TK Lee, PhD, Bureau of Health, Maine Dept of Human Svcs; L Orciari, P Pelletier, MS, Vermont Dept of Health; participating physicians of the American Academy of Family Physicians; State and Territorial Epidemiologists; State Laboratory Directors; Other collaborating laboratories; Statistical Svcs*

**FIGURE 1. Indicators of influenza activity, by week — United States, 1984-1985**




*Reported to CDC by approximately 125 physician-members of the American Academy of Family Physicians. A case was defined as a patient with fever 37.8° C (100° F) or greater and at least cough or sore throat.

†Reported to CDC from 121 cities in the United States. Pneumonia and influenza deaths include all deaths where pneumonia is listed as a primary or underlying cause or where influenza is listed on the death certificate.

§Reported to CDC by WHO Collaborating Laboratories (including military sources).

*Influenza — Continued*

*Br, Div of Surveillance and Epidemiologic Studies, Epidemiology Program Office, Influenza Br, Div of Viral Diseases, Center for Infectious Diseases, CDC.*

## *International Notes*

### Crimean-Congo Hemorrhagic Fever — Republic of South Africa

During August and September 1984, eight cases of Crimean-Congo hemorrhagic fever (CCHF) occurred in a hospital in Capetown, Republic of South Africa. Two patients died.

The index case was a 26-year-old man from the Vredenburg district, approximately 120 kilometers north of Cape Town. Although he had no evidence of a recent tick bite, he had had regular contact with farm animals. His illness began on August 28, with a sore throat, muscle pains, and pyrexia. Four days later, he had slight hematemesis, followed by a massive gastrointestinal hemorrhage the next day. After resuscitation at a peripheral hospital, he was transferred to a hospital in Cape Town, late on September 3.

*(Continued on page 99)*

**TABLE I. Summary—cases of specified notifiable diseases, United States**

| Disease | 7th Week Ending | | | Cumulative, 7th Week Ending | | |
|---|---|---|---|---|---|---|
| | Feb. 16, 1985 | Feb. 18, 1984 | Median 1980-1984 | Feb. 16, 1985 | Feb. 18, 1984 | Median 1980-1984 |
| Acquired Immunodeficiency Syndrome (AIDS) | U | 82 | N | 605 | 449 | N |
| Aseptic meningitis | 52 | 46 | 60 | 439 | 801 | 575 |
| Encephalitis: Primary (arthropod-borne & unspec.) | 11 | 10 | 12 | 86 | 102 | 104 |
| Post-infectious | 3 | 2 | 1 | 13 | 8 | 8 |
| Gonorrhea: Civilian | 12,398 | 16,251 | 16,251 | 101,989 | 113,391 | 126,768 |
| Military | 327 | 430 | 481 | 2,001 | 2,889 | 3,821 |
| Hepatitis: Type A | 222 | 353 | 488 | 2,390 | 2,561 | 3,006 |
| Type B | 326 | 440 | 374 | 2,818 | 3,034 | 2,333 |
| Non A, Non B | 51 | 69 | N | 438 | 433 | N |
| Unspecified | 64 | 82 | 113 | 515 | 523 | 1,018 |
| Legionellosis | 3 | 7 | N | 64 | 50 | N |
| Leprosy | 2 | - | 3 | 12 | 26 | 26 |
| Malaria | 12 | 7 | 12 | 68 | 73 | 85 |
| Measles: Total* | 2 | 35 | 34 | 34 | 223 | 223 |
| Indigenous | 2 | 34 | N | 12 | 166 | N |
| Imported | - | 1 | N | 22 | 57 | N |
| Meningococcal infections: Total | 52 | 78 | 87 | 342 | 403 | 410 |
| Civilian | 52 | 78 | 86 | 342 | 403 | 406 |
| Military | - | - | - | - | - | 2 |
| Mumps | 92 | 76 | 76 | 372 | 447 | 569 |
| Pertussis | 17 | 30 | 25 | 123 | 206 | 135 |
| Rubella (German measles) | 1 | 10 | 45 | 22 | 54 | 215 |
| Syphilis (Primary & Secondary): Civilian | 385 | 618 | 598 | 3,169 | 3,880 | 3,992 |
| Military | 4 | 5 | 6 | 24 | 45 | 56 |
| Toxic Shock syndrome | 5 | 8 | N | 42 | 57 | N |
| Tuberculosis | 254 | 416 | 452 | 2,002 | 2,393 | 2,863 |
| Tularemia | 1 | 1 | 1 | 14 | 5 | 12 |
| Typhoid fever | 3 | 7 | 7 | 23 | 39 | 44 |
| Typhus fever, tick-borne (RMSF) | 1 | - | - | 5 | 7 | 7 |
| Rabies, animal | 80 | 73 | 73 | 401 | 494 | 605 |

**TABLE II. Notifiable diseases of low frequency, United States**

| | Cum. 1985 | | Cum. 1985 |
|---|---|---|---|
| Anthrax | - | Plague | - |
| Botulism: Foodborne | - | Poliomyelitis: Total | - |
| Infant | 4 | Paralytic | - |
| Other (Md. 1) | 1 | Psittacosis (N. Y. City 1) | 17 |
| Brucellosis | 4 | Rabies, human | - |
| Cholera | - | Tetanus (Ohio 1, Tex. 1) | 5 |
| Congenital rubella syndrome | - | Trichinosis | 4 |
| Diphtheria | - | Typhus fever, flea-borne (endemic, murine) | - |
| Leptospirosis | 5 | | |

*There were no cases of internationally imported measles reported for this week.

## TABLE III. Cases of specified notifiable diseases, United States, weeks ending February 16, 1985 and February 18, 1984 (7th Week)

| Reporting Area | AIDS | Aseptic Menin-gitis | Encephalitis | | Gonorrhea (Civilian) | | Hepatitis (Viral), by type | | | | Legionel-losis | Leprosy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Primary | Post-in-fectious | | | A | B | NA,NB | Unspeci-fied | | |
| | Cum 1985 | 1985 | Cum 1985 | Cum 1985 | Cum 1985 | Cum 1984 | 1985 | 1985 | 1985 | 1985 | 1985 | Cum 1985 |
| UNITED STATES | 605 | 52 | 86 | 13 | 101,989 | 113,391 | 222 | 326 | 51 | 64 | 3 | 12 |
| NEW ENGLAND | 17 | 1 | 2 | - | 3,080 | 3,810 | 3 | 16 | 3 | 6 | - | - |
| Maine | 1 | - | - | - | 151 | 142 | - | - | - | - | - | - |
| N.H. | - | - | 1 | - | 74 | 85 | - | - | - | - | - | - |
| Vt. | - | - | - | - | 34 | 52 | 1 | 2 | 1 | - | - | - |
| Mass. | 11 | 1 | 1 | - | 1,095 | 1,440 | 2 | 10 | - | 6 | - | - |
| R.I. | 1 | - | - | - | 250 | 225 | - | 4 | 1 | - | - | - |
| Conn. | 4 | - | - | - | 1,476 | 1,866 | - | - | 1 | - | - | - |
| MID ATLANTIC | 241 | 12 | 5 | - | 15,890 | 14,061 | 25 | 60 | 7 | 4 | - | 1 |
| Upstate N.Y. | 44 | 7 | 2 | - | 1,929 | 2,041 | 5 | 21 | 3 | 1 | - | - |
| N.Y. City | 149 | 5 | - | - | 7,378 | 6,261 | 3 | - | - | - | - | 1 |
| N.J. | 32 | - | 3 | - | 2,697 | 1,894 | 12 | 30 | 2 | 3 | - | - |
| Pa. | 16 | - | - | - | 3,886 | 3,865 | 5 | 9 | 2 | - | - | - |
| E.N. CENTRAL | 45 | 8 | 28 | 2 | 14,505 | 16,449 | 28 | 53 | 3 | 2 | 1 | - |
| Ohio | 14 | 2 | 10 | 1 | 3,917 | 4,060 | 14 | 20 | 1 | 2 | - | - |
| Ind. | 2 | - | 6 | - | 1,230 | 1,921 | 3 | 5 | - | - | - | - |
| Ill. | 15 | 3 | 1 | - | 4,289 | 4,400 | - | 3 | - | - | - | - |
| Mich. | 10 | 3 | 9 | - | 4,428 | 4,414 | 11 | 25 | 2 | - | 1 | - |
| Wis. | 4 | - | 2 | 1 | 641 | 1,654 | - | - | - | - | - | - |
| W.N. CENTRAL | 10 | 4 | 5 | - | 5,766 | 5,188 | 7 | 22 | 3 | - | - | - |
| Minn. | 2 | 1 | 1 | - | 803 | 727 | - | 1 | 1 | - | - | - |
| Iowa | 2 | 1 | 4 | - | 620 | 619 | 1 | 6 | 1 | - | - | - |
| Mo. | 4 | 2 | - | - | 2,675 | 2,372 | 5 | 10 | 1 | - | - | - |
| N. Dak. | - | - | - | - | 34 | 54 | - | - | - | - | - | - |
| S. Dak. | - | - | - | - | 110 | 173 | - | - | - | - | - | - |
| Nebr. | - | - | - | - | 906 | 376 | 1 | 5 | - | - | - | - |
| Kans. | 2 | - | - | - | 1,018 | 867 | - | - | - | - | - | - |
| S. ATLANTIC | 61 | 12 | 13 | 6 | 21,624 | 28,595 | 37 | 76 | 15 | 11 | 1 | - |
| Del. | 1 | - | 1 | - | 462 | 494 | 1 | - | 1 | - | 1 | - |
| Md. | 8 | 3 | 3 | - | 2,995 | 3,803 | 3 | 9 | 1 | 1 | - | - |
| D.C. | 11 | - | - | - | 1,844 | 1,986 | - | - | - | - | - | - |
| Va. | 6 | - | 1 | 3 | 2,448 | 2,870 | 12 | 13 | - | - | - | - |
| W. Va. | - | - | - | - | 319 | 310 | - | - | 1 | - | - | - |
| N.C. | 7 | 3 | 7 | - | 4,205 | 4,563 | 1 | 5 | 1 | 1 | - | - |
| S.C. | 1 | - | 1 | - | 3,022 | 2,606 | 1 | 7 | 2 | 1 | - | - |
| Ga. | 8 | 1 | - | - | - | 5,579 | 4 | 13 | - | - | - | - |
| Fla. | 19 | 5 | - | 3 | 6,329 | 6,384 | 15 | 29 | 9 | 8 | - | - |
| E.S. CENTRAL | 8 | - | 3 | 3 | 8,828 | 9,552 | 3 | 13 | 2 | 1 | - | - |
| Ky. | 3 | - | 1 | - | 972 | 1,172 | 1 | 2 | - | 1 | - | - |
| Tenn. | - | - | 1 | - | 3,642 | 3,832 | 2 | 11 | 2 | - | - | - |
| Ala. | 4 | U | 1 | 3 | 2,490 | 3,151 | U | U | U | U | U | - |
| Miss. | 1 | - | - | - | 1,724 | 1,397 | - | - | - | - | - | - |
| W.S. CENTRAL | 38 | 9 | 5 | - | 15,499 | 15,598 | 29 | 26 | 2 | 31 | - | - |
| Ark. | - | - | - | - | 1,496 | 1,332 | - | - | - | - | - | - |
| La. | 1 | 4 | - | - | 3,396 | 3,682 | - | 2 | 1 | - | - | - |
| Okla. | - | 1 | 3 | - | 1,581 | 1,759 | 3 | 1 | - | - | - | - |
| Tex. | 37 | 4 | 2 | - | 9,026 | 8,825 | 26 | 23 | 1 | 31 | - | - |
| MOUNTAIN | 14 | 5 | 4 | 1 | 3,519 | 3,424 | 64 | 46 | 11 | 9 | 1 | - |
| Mont. | - | - | - | - | 104 | 182 | 8 | 1 | - | 1 | - | - |
| Idaho | - | - | - | - | 119 | 136 | 5 | 2 | 1 | - | - | - |
| Wyo. | - | - | - | - | 104 | 87 | - | - | - | - | - | - |
| Colo. | 4 | 2 | 2 | - | 1,070 | 864 | 3 | 11 | - | 5 | - | - |
| N. Mex. | 2 | - | - | - | 443 | 438 | 17 | 2 | - | - | 1 | - |
| Ariz. | 6 | 1 | - | - | 998 | 933 | 13 | 16 | 8 | 2 | - | - |
| Utah | - | 2 | 2 | 1 | 144 | 190 | 3 | 4 | 2 | - | - | - |
| Nev. | 2 | - | - | - | 537 | 594 | 15 | 10 | - | 1 | - | - |
| PACIFIC | 171 | 1 | 21 | 1 | 13,278 | 16,714 | 26 | 14 | 5 | - | - | 11 |
| Wash. | 7 | 1 | 1 | - | 987 | 1,130 | 5 | 1 | 3 | - | - | - |
| Oreg. | 4 | - | - | - | 921 | 918 | 21 | 10 | 1 | - | - | 1 |
| Calif. | 160 | U | 20 | 1 | 10,746 | 14,055 | U | U | U | U | U | 7 |
| Alaska | - | - | - | - | 387 | 362 | - | 2 | - | - | - | - |
| Hawaii | - | - | - | - | 237 | 249 | - | 1 | 1 | - | - | 3 |
| Guam | - | U | - | - | - | 45 | U | U | U | U | U | - |
| P.R. | 9 | 2 | 1 | - | 594 | 462 | - | 1 | - | 3 | - | - |
| V.I. | - | - | - | - | 54 | 62 | 1 | - | - | - | - | - |
| Pac. Trust Terr. | - | U | - | - | - | - | U | U | U | U | U | - |

N: Not notifiable U: Unavailable

**TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending February 16, 1985 and February 18, 1984 (7th Week)**

| Reporting Area | Malaria | Measles (Rubeola) | | | | | Menin-gococcal Infections | Mumps | | Pertussis | | | Rubella | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Indigenous | | Imported * | | Total | | | | | | | | | |
| | Cum. 1985 | 1985 | Cum. 1985 | 1985 | Cum. 1985 | Cum. 1984 | Cum. 1985 | 1985 | Cum. 1985 | 1985 | Cum. 1985 | Cum. 1984 | 1985 | Cum. 1985 | Cum. 1984 |
| UNITED STATES | 68 | 2 | 12 | - | 22 | 223 | 342 | 92 | 372 | 17 | 123 | 208 | 1 | 22 | 54 |
| NEW ENGLAND | 2 | - | - | - | - | - | 21 | 2 | 12 | 2 | 3 | 3 | - | 2 | 1 |
| Maine | - | - | - | - | - | - | 1 | - | 1 | - | - | - | - | - | 1 |
| N.H. | - | - | - | - | - | - | - | - | - | - | - | 1 | - | 1 | - |
| Vt. | - | - | - | - | - | - | 4 | - | - | - | 1 | 1 | - | - | - |
| Mass. | 1 | - | - | - | - | - | 4 | 1 | 9 | 1 | 1 | - | - | 1 | - |
| R.I. | - | - | - | - | - | - | 6 | 1 | 1 | 1 | 1 | 1 | - | - | - |
| Conn. | 1 | - | - | - | - | - | 6 | - | 1 | - | - | - | - | - | - |
| MID ATLANTIC | 11 | 1 | 1 | - | 1 | 3 | 40 | 8 | 61 | 3 | 21 | 16 | 1 | 6 | - |
| Upstate N.Y. | 4 | - | - | - | 1 | - | 12 | 3 | 43 | 3 | 8 | 8 | - | 1 | - |
| N.Y. City | 3 | 1 | 1 | - | - | 3 | 1 | 2 | 2 | - | 5 | - | 1 | 4 | - |
| N.J. | - | - | - | - | - | - | 13 | - | 5 | - | - | - | - | 1 | - |
| Pa. | 4 | - | - | - | - | - | 14 | 3 | 11 | - | 8 | 8 | - | - | - |
| E.N. CENTRAL | 5 | 1 | 7 | - | - | 144 | 71 | 59 | 153 | 3 | 25 | 47 | - | 4 | 5 |
| Ohio | 1 | - | - | - | - | - | 24 | 11 | 47 | - | 8 | 12 | - | - | - |
| Ind. | - | - | - | - | - | - | 9 | 1 | 7 | 1 | 11 | 20 | - | - | - |
| Ill. | - | 1 | 1 | - | - | 16 | 8 | 6 | 22 | 1 | 1 | 5 | - | - | 3 |
| Mich. | 4 | - | - | - | - | 128 | 23 | 41 | 59 | 1 | 2 | 4 | - | 4 | 1 |
| Wis. | - | - | 6 | - | - | - | 7 | - | 18 | - | 3 | 6 | - | - | 1 |
| W.N. CENTRAL | 1 | - | - | - | - | - | 21 | 1 | 7 | 5 | 11 | 45 | - | 1 | 4 |
| Minn. | - | - | - | - | - | - | 5 | - | - | 4 | 5 | 2 | - | - | - |
| Iowa | - | - | - | - | - | - | 3 | - | 1 | 1 | 1 | 3 | - | - | - |
| Mo. | 1 | - | - | - | - | - | 12 | 1 | 4 | - | 3 | 2 | - | - | - |
| N. Dak. | - | - | - | - | - | - | - | - | - | - | 2 | - | - | - | 1 |
| S. Dak. | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - |
| Nebr. | - | - | - | - | - | - | - | - | - | - | - | 2 | - | - | - |
| Kans. | - | - | - | - | - | - | - | - | 2 | - | - | 36 | - | 1 | 3 |
| S. ATLANTIC | 12 | - | 1 | - | 2 | - | 68 | 8 | 29 | 4 | 20 | 27 | - | 1 | 6 |
| Del. | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - |
| Md. | 2 | - | - | - | 1 | - | 5 | 4 | 5 | 2 | 3 | 1 | - | - | - |
| D.C. | 1 | - | - | - | 1 | - | 3 | - | - | - | - | - | - | - | - |
| Va. | 2 | - | - | - | - | - | 8 | - | 6 | 1 | 1 | 5 | - | - | - |
| W. Va. | 1 | - | - | - | - | - | 3 | 2 | 8 | - | - | 3 | - | - | - |
| N.C. | 1 | - | - | - | - | - | 12 | - | 1 | 1 | 5 | 8 | - | - | - |
| S.C. | - | - | - | - | - | - | 10 | - | 1 | - | - | 1 | - | 1 | - |
| Ga. | 1 | - | - | - | - | - | 13 | - | 2 | - | 3 | 3 | - | - | 1 |
| Fla. | 4 | - | 1 | - | - | - | 13 | 2 | 6 | - | 8 | 6 | - | - | 5 |
| E.S. CENTRAL | 2 | - | - | - | - | 2 | 19 | 1 | 2 | - | 3 | 2 | - | 1 | - |
| Ky. | - | - | - | - | - | - | 2 | - | - | - | 1 | 1 | - | 1 | - |
| Tenn. | - | - | - | - | - | 2 | 10 | - | 1 | - | 1 | 1 | - | - | - |
| Ala. | 2 | U | - | U | - | - | 5 | U | - | U | 1 | - | - | - | - |
| Miss. | - | - | - | - | - | - | 2 | 1 | 1 | - | - | - | - | - | - |
| W.S. CENTRAL | 4 | - | - | - | - | 31 | 27 | 2 | 21 | - | 9 | 18 | - | 1 | 4 |
| Ark. | - | - | - | - | - | - | 3 | - | 1 | - | 5 | 9 | - | 1 | 1 |
| La. | - | - | - | - | - | - | 2 | - | - | - | - | - | - | - | - |
| Okla. | - | - | - | - | - | - | 4 | N | N | - | 4 | 3 | - | - | - |
| Tex. | 4 | - | - | - | - | 31 | 18 | 2 | 20 | - | - | 6 | - | - | 3 |
| MOUNTAIN | 2 | - | - | - | 8 | 23 | 20 | 11 | 39 | - | 4 | 30 | - | - | 3 |
| Mont. | - | - | - | - | 8 | - | 2 | - | 2 | - | - | 15 | - | - | - |
| Idaho | - | - | - | - | - | - | - | - | 2 | - | - | 1 | - | - | 1 |
| Wyo. | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Colo. | - | - | - | - | - | - | 4 | 3 | 8 | - | 2 | 11 | - | - | - |
| N. Mex. | 2 | - | - | - | - | 3 | 4 | N | N | - | 1 | 2 | - | - | - |
| Ariz. | - | - | - | - | - | - | 5 | 7 | 23 | - | 1 | - | - | - | - |
| Utah | - | - | - | - | - | 20 | 4 | 1 | 2 | - | - | 1 | - | - | 2 |
| Nev. | - | - | - | - | - | - | 1 | - | 2 | - | - | - | - | - | - |
| PACIFIC | 29 | - | 3 | - | 11 | 20 | 55 | - | 48 | - | 27 | 18 | - | 6 | 31 |
| Wash. | 4 | - | - | - | - | 5 | 7 | - | 2 | - | 2 | 6 | - | - | - |
| Oreg. | 1 | - | - | - | - | - | 5 | N | N | - | 4 | 4 | - | - | - |
| Calif. | 22 | U | 2 | U | 10 | 13 | 43 | U | 39 | U | 19 | 8 | U | 6 | 30 |
| Alaska | 1 | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - |
| Hawaii | 1 | - | 1 | - | 1 | 2 | - | - | 6 | - | 2 | - | - | - | 1 |
| Guam | - | U | - | U | - | 18 | - | U | - | U | - | - | U | - | 1 |
| P.R. | - | - | 20 | - | - | - | 14 | 1 | 25 | - | 1 | - | - | 4 | 1 |
| V.I. | - | - | 2 | 2 | 2 | - | - | - | 1 | - | - | - | - | - | - |
| Pac. Trust Terr. | - | U | - | U | - | - | - | U | - | U | - | - | U | - | - |

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable †International §Out-of-state

**TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending February 16, 1985 and February 18, 1984 (7th Week)**

| Reporting Area | Syphilis (Civilian) (Primary & Secondary) | | Toxic-shock Syndrome | Tuberculosis | | Tula-remia | Typhoid Fever | Typhus Fever (Tick-borne) (RMSF) | Rabies, Animal |
|---|---|---|---|---|---|---|---|---|---|
| | Cum 1985 | Cum 1984 | 1985 | Cum 1985 | Cum 1984 | Cum 1985 | Cum 1985 | Cum 1985 | Cum 1985 |
| UNITED STATES | 3,169 | 3,880 | 5 | 2,002 | 2,393 | 14 | 23 | 5 | 401 |
| NEW ENGLAND | 69 | 90 | 1 | 80 | 71 | - | 3 | - | - |
| Maine | 2 | 1 | - | 2 | 4 | - | - | - | - |
| N.H. | - | - | - | - | 5 | - | - | - | - |
| Vt. | - | - | - | - | 2 | - | - | - | - |
| Mass. | 38 | 59 | 1 | 49 | 33 | - | 2 | - | - |
| R.I. | 1 | 4 | - | 13 | 10 | - | - | - | - |
| Conn. | 28 | 26 | - | 16 | 17 | - | 1 | - | - |
| MID. ATLANTIC | 451 | 525 | - | 450 | 458 | - | 5 | - | 71 |
| Upstate N.Y. | 23 | 42 | - | 44 | 75 | - | 3 | - | 12 |
| N.Y. City | 297 | 294 | - | 258 | 177 | - | - | - | - |
| N.J. | 77 | 111 | - | 28 | 94 | - | 1 | - | - |
| Pa. | 54 | 78 | - | 120 | 112 | - | 1 | - | 59 |
| E.N. CENTRAL | 147 | 194 | 2 | 268 | 307 | - | 2 | 1 | 5 |
| Ohio | 12 | 35 | 2 | 52 | 78 | - | 1 | 1 | 1 |
| Ind. | 10 | 29 | - | 33 | 32 | - | 1 | - | - |
| Ill. | 83 | 81 | - | 114 | 114 | - | - | - | 1 |
| Mich. | 35 | 34 | - | 53 | 67 | - | - | - | - |
| Wis. | 7 | 15 | - | 16 | 16 | - | - | - | 3 |
| W.N. CENTRAL | 39 | 62 | 1 | 50 | 55 | 4 | 2 | - | 80 |
| Minn. | 14 | 12 | - | 6 | 8 | - | 2 | - | 7 |
| Iowa | 7 | 5 | - | 14 | 9 | - | - | - | 31 |
| Mo. | 10 | 37 | - | 18 | 22 | 3 | - | - | 5 |
| N. Dak. | - | - | - | - | 2 | - | - | - | 7 |
| S. Dak. | 1 | - | - | 2 | 1 | - | - | - | 25 |
| Nebr. | 1 | 3 | 1 | 3 | 6 | 1 | - | - | 5 |
| Kans. | 6 | 5 | - | 7 | 7 | - | - | - | - |
| S. ATLANTIC | 841 | 1,180 | 1 | 393 | 539 | 3 | 5 | 2 | 44 |
| Del. | 4 | 1 | - | 3 | 7 | - | - | - | - |
| Md. | 64 | 64 | 1 | 42 | 66 | - | 1 | - | - |
| D.C. | 41 | 37 | - | 22 | 10 | - | - | - | - |
| Va. | 44 | 60 | - | 18 | 41 | - | 1 | - | 13 |
| W. Va. | - | 5 | - | 13 | 18 | - | - | - | - |
| N.C. | 96 | 124 | - | 35 | 101 | 3 | - | 1 | - |
| S.C. | 113 | 119 | - | 51 | 78 | - | - | 1 | 4 |
| Ga. | - | 204 | - | 52 | 63 | - | - | - | 15 |
| Fla. | 479 | 566 | - | 157 | 155 | - | 3 | - | 12 |
| E.S. CENTRAL | 274 | 274 | - | 168 | 233 | 1 | - | 2 | 21 |
| Ky. | 11 | 14 | - | 39 | 62 | - | - | - | 3 |
| Tenn. | 73 | 61 | - | 42 | 77 | 1 | - | 1 | 2 |
| Ala. | 108 | 91 | U | 66 | 79 | - | - | 1 | 16 |
| Miss. | 82 | 108 | - | 21 | 15 | - | - | - | - |
| W.S. CENTRAL | 787 | 909 | - | 178 | 200 | 2 | - | - | 80 |
| Ark. | 40 | 31 | - | 7 | 6 | - | - | - | 8 |
| La. | 149 | 194 | - | 41 | 26 | - | - | - | 3 |
| Okla. | 26 | 23 | - | 24 | 24 | 2 | - | - | 9 |
| Tex. | 572 | 661 | - | 106 | 144 | - | - | - | 60 |
| MOUNTAIN | 106 | 74 | - | 34 | 36 | 3 | - | - | 53 |
| Mont. | 1 | - | - | 5 | 1 | - | - | - | 25 |
| Idaho | 2 | 4 | - | 1 | 3 | - | - | - | - |
| Wyo. | 3 | 1 | - | 1 | - | - | - | - | 2 |
| Colo. | 25 | 10 | - | - | - | - | - | - | - |
| N. Mex. | 7 | 8 | - | 4 | 9 | 1 | - | - | 1 |
| Ariz. | 63 | 28 | - | 20 | 19 | - | - | - | 25 |
| Utah | 1 | 3 | - | - | 3 | 2 | - | - | - |
| Nev. | 4 | 20 | - | 3 | 1 | - | - | - | - |
| PACIFIC | 455 | 572 | - | 381 | 494 | 1 | 6 | - | 47 |
| Wash. | 12 | 25 | - | 7 | 22 | - | - | - | - |
| Oreg. | 19 | 15 | - | 13 | 18 | 1 | - | - | - |
| Calif. | 414 | 519 | U | 321 | 414 | - | 6 | - | 47 |
| Alaska | - | - | - | 18 | 8 | - | - | - | - |
| Hawaii | 10 | 13 | - | 22 | 32 | - | - | - | - |
| Guam | - | - | U | - | 2 | - | - | - | - |
| P.R. | 135 | 138 | - | 40 | 27 | - | 1 | - | 1 |
| V.I. | - | 2 | - | - | - | - | - | - | - |
| Pac. Trust Terr. | - | - | U | - | - | - | - | - | - |

U: Unavailable

## TABLE IV. Deaths in 121 U.S. cities,* week ending February 16, 1985 (7th Week)

| Reporting Area | All Causes, By Age (Years) | | | | | | P&I** Total |
|---|---|---|---|---|---|---|---|
| | All Ages | ≥65 | 45-64 | 25-44 | 1-24 | <1 | |
| NEW ENGLAND | 829 | 579 | 182 | 28 | 17 | 22 | 91 |
| Boston, Mass. | 220 | 142 | 59 | 8 | 5 | 6 | 23 |
| Bridgeport, Conn. | 54 | 40 | 10 | 2 | 1 | 1 | 4 |
| Cambridge, Mass. | 34 | 28 | 5 | - | 1 | - | 3 |
| Fall River, Mass. | 38 | 29 | 9 | - | - | - | 2 |
| Hartford, Conn. | 71 | 51 | 13 | 2 | 3 | 2 | 9 |
| Lowell, Mass. | 39 | 29 | 7 | 1 | 2 | - | 2 |
| Lynn, Mass. | 24 | 14 | 9 | 1 | - | - | 1 |
| New Bedford, Mass. | 23 | 19 | 4 | - | - | - | 4 |
| New Haven, Conn. | 68 | 40 | 15 | 4 | 1 | 8 | 1 |
| Providence, R.I. | 89 | 61 | 18 | 4 | 2 | 4 | 14 |
| Somerville, Mass. | 19 | 16 | 3 | - | - | - | 3 |
| Springfield, Mass. | 37 | 29 | 4 | 4 | - | - | 7 |
| Waterbury, Conn. | 39 | 29 | 8 | 1 | 1 | - | 7 |
| Worcester, Mass. | 73 | 52 | 18 | 1 | 1 | 1 | 11 |
| MID. ATLANTIC | 3,093 | 2,097 | 638 | 234 | 64 | 60 | 187 |
| Albany, N.Y. | 65 | 45 | 15 | 1 | 3 | 1 | 2 |
| Allentown, Pa. | 20 | 12 | 8 | - | - | - | - |
| Buffalo, N.Y. | 99 | 71 | 22 | 5 | - | 1 | 10 |
| Camden, N.J. | 52 | 31 | 9 | 5 | 3 | 4 | 1 |
| Elizabeth, N.J. | 29 | 22 | 3 | 2 | - | 2 | 1 |
| Erie, Pa.† | 42 | 26 | 10 | 1 | 1 | 4 | 5 |
| Jersey City, N.J. | 64 | 41 | 15 | 7 | - | 1 | 3 |
| N.Y. City, N.Y. | 1,702 | 1,151 | 329 | 156 | 34 | 32 | 96 |
| Newark, N.J. | 83 | 38 | 30 | 14 | - | 1 | 6 |
| Paterson, N.J. | 20 | 11 | 6 | 2 | - | 1 | 4 |
| Philadelphia, Pa.† | 390 | 265 | 91 | 16 | 9 | 9 | 16 |
| Pittsburgh, Pa.† | 81 | 50 | 25 | 5 | - | 1 | 5 |
| Reading, Pa. | 39 | 30 | 7 | - | 2 | - | 3 |
| Rochester, N.Y. | 129 | 98 | 23 | 4 | 2 | 2 | 10 |
| Schenectady, N.Y. | 43 | 31 | 6 | 3 | 3 | - | 5 |
| Scranton, Pa.† | 23 | 19 | 4 | - | - | - | 2 |
| Syracuse, N.Y. | 122 | 89 | 19 | 10 | 3 | 1 | 11 |
| Trenton, N.J. | 36 | 23 | 11 | 1 | 1 | - | 2 |
| Utica, N.Y. | 27 | 23 | 1 | - | 3 | - | 2 |
| Yonkers, N.Y. | 27 | 21 | 4 | 2 | - | - | 3 |
| E.N. CENTRAL | 2,441 | 1,761 | 402 | 141 | 58 | 78 | 136 |
| Akron, Ohio | 124 | 81 | 29 | 8 | 5 | 1 | 3 |
| Canton, Ohio | 88 | 27 | 9 | - | - | - | 6 |
| Chicago, Ill. § | 550 | 461 | 11 | 25 | 16 | 36 | 16 |
| Cincinnati, Ohio | 121 | 82 | 30 | 5 | 2 | 2 | 9 |
| Cleveland, Ohio | 173 | 123 | 34 | 8 | 5 | 3 | 8 |
| Columbus, Ohio | 176 | 114 | 39 | 12 | 5 | 6 | 7 |
| Dayton, Ohio | 132 | 96 | 33 | 10 | 2 | 1 | 13 |
| Detroit, Mich. | 268 | 165 | 59 | 32 | 5 | 7 | 7 |
| Evansville, Ind. | 50 | 34 | 12 | 1 | 2 | 1 | 2 |
| Fort Wayne, Ind. | 56 | 38 | 13 | 4 | - | 1 | 4 |
| Gary, Ind. | 20 | 11 | 7 | - | 1 | 1 | 2 |
| Grand Rapids, Mich. | 42 | 28 | 9 | 3 | 1 | 1 | 5 |
| Indianapolis, Ind. | 170 | 109 | 39 | 13 | 4 | 5 | 7 |
| Madison, Wis. | 51 | 35 | 10 | 5 | - | 1 | 6 |
| Milwaukee, Wis. | 168 | 132 | 22 | 5 | 4 | 5 | 12 |
| Peoria, Ill. | 45 | 30 | 8 | 2 | 2 | 3 | 3 |
| Rockford, Ill. | 56 | 46 | 9 | 1 | - | - | 11 |
| South Bend, Ind. | 21 | 16 | 4 | 1 | - | - | 2 |
| Toledo, Ohio | 109 | 82 | 18 | 5 | - | 4 | 8 |
| Youngstown, Ohio | 73 | 61 | 7 | 1 | 4 | - | 5 |
| W.N. CENTRAL | 858 | 625 | 145 | 44 | 19 | 25 | 59 |
| Des Moines, Iowa | 72 | 56 | 7 | 7 | - | 2 | 7 |
| Duluth, Minn. | 31 | 22 | 5 | 1 | 3 | - | 1 |
| Kansas City, Kans. | 38 | 24 | 6 | 4 | - | 4 | - |
| Kansas City, Mo. | 110 | 70 | 26 | 7 | 4 | 3 | 11 |
| Lincoln, Nebr. | 48 | 37 | 9 | 1 | 1 | - | 11 |
| Minneapolis, Minn. | 100 | 78 | 13 | 5 | - | 4 | 4 |
| Omaha, Nebr. | 95 | 68 | 22 | 2 | 1 | 2 | 8 |
| St. Louis, Mo. | 188 | 154 | 19 | 6 | 5 | 4 | 7 |
| St. Paul, Minn. | 77 | 58 | 12 | 5 | 1 | 1 | 3 |
| Wichita, Kans. | 99 | 58 | 26 | 6 | 4 | 5 | 7 |
| S. ATLANTIC | 1,465 | 955 | 336 | 112 | 27 | 34 | 87 |
| Atlanta, Ga. | 154 | 105 | 26 | 15 | 6 | 2 | 4 |
| Baltimore, Md. | 260 | 178 | 57 | 16 | 3 | 6 | 7 |
| Charlotte, N.C. | 116 | 68 | 29 | 13 | 3 | 3 | 14 |
| Jacksonville, Fla. | 138 | 95 | 27 | 8 | 4 | 4 | 13 |
| Miami, Fla. | 108 | 71 | 29 | 6 | - | 2 | 5 |
| Norfolk, Va. | 66 | 39 | 14 | 7 | 2 | 4 | 5 |
| Richmond, Va. | 88 | 49 | 22 | 9 | 5 | 3 | 5 |
| Savannah, Ga. | 43 | 32 | 6 | 4 | - | 1 | 7 |
| St. Petersburg, Fla. | 138 | 117 | 15 | 4 | 1 | 1 | 9 |
| Tampa, Fla. | 91 | 59 | 23 | 6 | 1 | 1 | 7 |
| Washington, D.C. | 216 | 114 | 75 | 19 | 1 | 7 | 10 |
| Wilmington, Del. | 47 | 28 | 13 | 5 | 1 | - | 1 |
| E.S. CENTRAL | 954 | 698 | 152 | 46 | 26 | 32 | 59 |
| Birmingham, Ala. | 118 | 85 | 32 | 6 | 4 | 11 | 5 |
| Chattanooga, Tenn. | 45 | 33 | 8 | 2 | 1 | 1 | 5 |
| Knoxville, Tenn. | 86 | 58 | 21 | 5 | 2 | - | 7 |
| Louisville, Ky. | 150 | 105 | 35 | 6 | 2 | 2 | 12 |
| Memphis, Tenn. § | 240 | 217 | 2 | 6 | 7 | 8 | 16 |
| Mobile, Ala. | 93 | 58 | 21 | 7 | 4 | 3 | 5 |
| Montgomery, Ala. § | 52 | 46 | - | 2 | 2 | 2 | 3 |
| Nashville, Tenn. | 170 | 116 | 33 | 12 | 4 | 5 | 6 |
| W.S. CENTRAL | 1,333 | 856 | 290 | 102 | 37 | 48 | 92 |
| Austin, Tex. | 73 | 53 | 12 | 5 | - | 3 | 6 |
| Baton Rouge, La. | 47 | 25 | 18 | 2 | - | 2 | 2 |
| Corpus Christi, Tex. | 21 | 12 | 5 | 4 | - | - | - |
| Dallas, Tex. | 252 | 143 | 79 | 15 | 7 | 8 | 10 |
| El Paso, Tex. | 80 | 53 | 19 | 4 | 1 | 3 | 7 |
| Fort Worth, Tex. | 113 | 78 | 22 | 3 | 6 | 4 | 13 |
| Houston, Tex. | 114 | 52 | 23 | 24 | 7 | 8 | 7 |
| Little Rock, Ark. | 85 | 60 | 17 | 5 | 1 | 2 | 13 |
| New Orleans, La. | 151 | 96 | 35 | 11 | 5 | 4 | - |
| San Antonio, Tex. | 236 | 155 | 45 | 21 | 7 | 8 | 23 |
| Shreveport, La. § | 61 | 59 | - | 1 | - | 1 | 1 |
| Tulsa, Okla. | 100 | 70 | 15 | 7 | 3 | 5 | 10 |
| MOUNTAIN | 801 | 530 | 175 | 51 | 19 | 26 | 53 |
| Albuquerque, N.Mex. | 108 | 69 | 28 | 8 | 2 | 1 | 8 |
| Colo. Springs, Colo. | 38 | 28 | 6 | 2 | 1 | 1 | 7 |
| Denver, Colo. | 123 | 79 | 25 | 10 | 3 | 6 | 9 |
| Las Vegas, Nev. | 121 | 71 | 36 | 6 | 4 | 4 | 8 |
| Ogden, Utah | 24 | 20 | 2 | 1 | 1 | - | 4 |
| Phoenix, Ariz. | 185 | 128 | 37 | 12 | 2 | 6 | 3 |
| Pueblo, Colo. | 24 | 12 | 9 | - | 2 | 1 | 1 |
| Salt Lake City, Utah | 51 | 31 | 10 | 4 | 1 | 5 | 3 |
| Tucson, Ariz. | 127 | 92 | 22 | 8 | 3 | 2 | 10 |
| PACIFIC | 2,193 | 1,666 | 320 | 101 | 48 | 53 | 180 |
| Berkeley, Calif. | 33 | 20 | 1 | 1 | - | 1 | 3 |
| Fresno, Calif. | 110 | 79 | 21 | 5 | 2 | 3 | 15 |
| Glendale, Calif. § | 27 | 27 | - | - | - | - | - |
| Honolulu, Hawaii | 75 | 45 | 25 | 3 | 1 | 1 | 5 |
| Long Beach, Calif. | 132 | 95 | 20 | 8 | 4 | 5 | 8 |
| Los Angeles, Calif. § | 525 | 388 | 86 | 3 | 15 | 9 | 20 |
| Oakland, Calif. | 94 | 70 | 13 | 9 | 2 | - | 8 |
| Pasadena, Calif. | 41 | 30 | 8 | 2 | - | 1 | 6 |
| Portland, Oreg. | 152 | 113 | 28 | 3 | 2 | 6 | 12 |
| Sacramento, Calif. | 147 | 94 | 37 | 9 | 1 | 6 | 14 |
| San Diego, Calif. | 148 | 101 | 28 | 8 | 6 | 3 | 20 |
| San Francisco, Calif. | 192 | 130 | 38 | 16 | 2 | 6 | 7 |
| San Jose, Calif. | 208 | 146 | 36 | 16 | 4 | 6 | 29 |
| Seattle, Wash. | 157 | 118 | 21 | 10 | 6 | 2 | 11 |
| Spokane, Wash. | 57 | 42 | 10 | 2 | 1 | 2 | 6 |
| Tacoma, Wash. | 107 | 68 | 28 | 6 | 3 | 2 | 16 |
| TOTAL | 13,986†† | 9,767 | 2,640 | 859 | 316 | 378 | 944 |

* Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

** Pneumonia and influenza.

† Because of changes in reporting methods in these 4 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

†† Total includes unknown ages.

§ Data not available. Figures are estimates based on average of past 4 weeks.

*Crimean-Congo Hemorrhagic Fever — Continued*

On admission, the patient was in a severe hemorrhagic state requiring rapid transfusion to maintain blood volume. He was transferred to an intensive-care unit, where hemorrhagic fever was suspected. Although the bleeding was controlled, the patient died of multiple organ failure on September 8. The diagnosis was confirmed by isolation of the CCHF virus from blood taken on September 4 and from liver tissue removed immediately after death. No antibodies were detected.

Patients 2, 3, and 4 were nurses who had cared for the index patient during his first few hours in the intensive-care unit and before the institution of isolation procedures. Five days after initial contact, they developed pyrexia, muscle pain, sore throat, conjunctivitis, and upper abdominal tenderness. Four days after the onset of symptoms, a bleeding tendency was noted, and their platelet counts fell dramatically.

Patients 5 and 6 were nurses who had no direct contact with the index patient but came in contact with contaminated material during the setting up of isolation procedures. Five days after this contact, they developed symptoms similar to those of patients 2, 3, and 4. Purpura and bleeding also began on the fourth day of illness.

CCHF was confirmed in patients 2-6 by isolation of the virus and a rising antibody titer.

Patient 7 was a 37-year-old surgeon who had had no known direct contact with the index patient but had visited the intensive-care unit before isolation. Headache and pyrexia began 5 days later, followed by severe thrombocytopenia and bleeding after an additional 5 days. CCHF was not initially suspected, but the virus was isolated from his blood. Despite intensive supportive measures, he died 8 days after onset of illness. As with patient 1, there was no antibody response.

Patient 8 was a senior member of the nursing staff who had contact with all the other CCHF patients. Her probable mode of infection was an unintentional needle prick while nursing patient 3. Prophylactic treatment with antibody-rich plasma, ribavirin, and interferon was begun, but she developed headache, weakness, jaundice, and elevated liver enzymes. Her illness was milder than those of the other patients, and she did not develop thrombocytopenia. Although the antibody titer rose during her illness, no virus was isolated.

Treatment was mainly supportive. Multiple platelet transfusions were essential to maintain hemostasis. Convalescent anti-CCHF plasma was administered to patients 2-5. Patients 2-6 did not develop major hemorrhages and were discharged 10-12 days after onset of symptoms.

The hospital is a 2,000-bed teaching hospital. The correct diagnosis was suspected 12 hours after admission and barrier nursing had begun on the index patient. Stringent isolation procedures, including use of protective clothing and goggles, were instituted 36 hours after admission. Laboratory confirmation of the diagnosis was received only 2 days after the patient died.

During the first 24 hours, numerous blood specimens were handled in various hospital laboratories without precautions. Fully equipped laboratories were later set up in the isolation area for blood cross-matching and hematologic and chemical investigations. Virologic studies were carried out in the high security (P4) laboratory of the National Institute of Virology in Johannesburg.

Altogether, 35 persons came in contact with the index patient while in the hospital, including students, technicians, and cleaning staff. Patient 8 was the only tertiary case, among the numerous contacts with patient 7.

*Reported by WL Michell, MD, JJ Groenewald, PJ van Eeden, MD, Tygerberg Hospital and University of Stellenbosch, JW Moodie, University of Cape Town, R Swanepoel, AE Sheperd, PA Leman, SP Sheperd, National Institute of Virology, Johannesburg, Republic of South Africa; Div of Viral Diseases, Center for Infectious Diseases, CDC.*

*Crimean-Congo Hemorrhagic Fever – Continued*

**Editorial Note:** CCHF was first reported in South Africa in 1981 (*1*). Subsequently, a number of cases have occurred (*2*), but secondary cases have not previously been reported in South Africa. CCHF has resulted in hospital epidemics in several other countries (*3,4*).

CCHF is caused by a Bunyavirus of the arbovirus group (*5*). Widespread occurrence of the antibodies in wild and domestic animals in South Africa has been documented (*6*). Transmission to humans is thought to be primarily via the Hyalloma genus of tick or contact with the blood of infected animals (*6*).

CCHF is being reported with increasing frequency from South Africa. Unlike previous South African cases, which have all been associated with exposure to ticks or livestock, the present outbreak was due to nosocomial spread of virus. Nosocomial infections with CCHF have occurred in other countries, including Iraq, the Soviet Union, and Pakistan (*3,5,7*). Contact with bloody secretions appeared to be the means of transmission in those outbreaks, although airborne transmission has been neither proven nor disproven (*5*). Similarly, in the South African outbreak, five of the six secondary cases and the tertiary case had direct contact with either a patient or contaminated material. Of particular interest is patient 7, the only secondary case to die, who had no known direct contact with a patient or with contaminated material. As in this outbreak, tertiary cases are often mild, perhaps because of a low infective dose or of attenuation of the virus after human passage (*3*).

Treatment of CCHF is mainly supportive. The role of prophylactic plasma, ribavirin, and interferon in reducing the severity of illness could not be evaluated in this situation. The four patients who received CCHF antibody-rich plasma had relatively mild disease. Although its efficacy is not firmly established, some reports suggest a beneficial role for plasma therapy, especially when adminstered early in the course of illness (*5*). Antiviral drugs, such as ribavirin, are of potential use in the treatment of CCHF, but they have yet to undergo clinical trials.

CCHF, as well as other viral hemorrhagic fevers, such as Ebola virus disease, Marburg virus disease, and Lassa fever, have the potential to spread in a hospital setting. Patients are often hospitalized with a severe illness, but the nonspecific nature of their signs and symptoms may not suggest a viral hemorrhagic fever (*8*). Furthermore, even simple isolation procedures, such as barrier nursing on open wards, can effectively halt transmission of these viruses (*9*). Thus, it is imperative that a diagnosis of a viral hemorrhagic fever be considered in any patient with an unknown febrile disease who either resides in or traveled to an endemic area within 3 weeks of the onset of symptoms. If other, more common causes of the fever, such as malaria or sepsis, can be reasonably excluded, measures for isolation of the patient should be taken immediately.

*References*

1. Gear JHS, Thomson PD, Hopp M, et al. Congo-Crimean haemorrhagic fever in South Africa. Report of a fatal case in the Travsvaal. S Afr Med J 1982;62:576-80.
2. CDC. Congo-Crimean hemorrhagic fever—Republic of South Africa. MMWR 1984;33:535-6, 541, 548.
3. Burney MI, Ghafoor A, Saleen M, Webb PA, Casals J. Nosocomial outbreak of viral hemorrhagic fever caused by a Crimean hemorrhagic fever-Congo virus in Pakistan, January 1976. Am J Trop Med Hyg 1980;29:941-7.
4. Suleiman MNEH, Muscat-Baron JM, Harries JR, et al. Congo/Crimean haemorrhagic fever in Dubai: an outbreak at the Rashid Hospital. Lancet 1980;ii:939-41.
5. Hoogstraal H. The epidemiology of tick-borne Crimean-Congo hemorrhagic fever in Asia, Europe, and Africa. J Med Entomol 1979;15:307-417.
6. Swanepoel R, Struthers JK, Shepherd AJ, McGillivray GM, Nel MJ, Jupp PG. Crimean-Congo hemorrhagic fever in South Africa. Am J Trop Med Hyg 1983;32:1407-15.
7. Al-Tikriti SK, Al-Ani F, Jurji FJ, et al. Congo/Crimean haemorrhagic fever in Iraq. Bull WHO 1981;59:85-90.

*Crimean-Congo Hemorrhagic Fever — Continued*

8. CDC. Viral hemorrhagic fever: initial management of suspected and confirmed cases. MMWR (supplement) 1983;32.
9. Hopkins CC, McCormick JB. Isolation and management of contagious, highly lethal disease. In: Remington JS, Swartz MN. Current clinical topics in infectious diseases. New York: McGraw-Hill, 1984:86-105.

## *Current Trends*

### Update: Prospective Evaluation of Health-Care Workers Exposed via the Parenteral or Mucous-Membrane Route to Blood or Body Fluids from Patients with Acquired Immunodeficiency Syndrome — United States

On August 15, 1983, CDC initiated prospective surveillance of health-care workers (HCWs) with documented parenteral or mucous-membrane exposure to potentially infectious body fluids from patients with definite or suspected acquired immunodeficiency syndrome (AIDS). As of December 31, 1984, 361 HCWs with such exposures were enrolled in CDC's surveillance registry under the auspices of participating hospitals, other health-care institutions, and state and local health departments in the United States. Each enrolled HCW is followed for 3 years with a semiannual interview, physical examination, and blood specimen collection. None of the HCWs have developed signs or symptoms suggestive of AIDS; 143 (40%) have now been followed for 12 months or longer.

Exposed HCWs have been reported from 33 states and the District of Columbia. Fifty-nine percent of the HCWs were reported from six states: New York (61), California (39), New Jersey (36), Pennsylvania (28), Florida (25), and Texas (23). As of December 31, 1984, the length of follow-up of HCWs ranged from 1 month to 45 months (mean 11 months; median 10 months). Two hundred eight (58%) HCWs were nurses; 66 (18%), physicians or medical students; 31 (9%), laboratory workers; 26 (7%), phlebotomists; 15 (4%), respiratory therapists; and the remaining 15 (4%) had less direct patient contact. Eighty-five percent were white, and 78% were female. Ages ranged from 18 years to 62 years (mean 33 years).

The majority of exposures occurred in direct patient-care areas; 187 (52%) occurred in patients' rooms or on the wards: 99 (27%), in intensive-care units; and seven (2%), in emergency clinics. Thirty-two (9%) incidents took place in laboratories, and 36 (10%) occurred in operating or procedure rooms and morgues. The types of exposures were: needlestick injuries (68%); mucosal exposures (13%); cuts with sharp instruments (10%); and contamination of open skin lesions with potentially infected body fluids (9%). Eighty-eight percent of the exposures were to blood or serum; 6%, to saliva; 2%, to urine; and the remaining 4%, to other body fluids or unknown sources. Postexposure care varied considerably. Forty-eight percent of exposed HCWs received either no specific treatment or local wound care only, while 35% received immune globulin either alone or in combination with other treatment.

Complete epidemiologic data have been collected on 226 of the patients to whom these HCWs were exposed. Two hundred nine (92%) were AIDS patients meeting the CDC surveillance definition, and 17 (8%) were suspected AIDS cases. Two hundred three (97%) of the 209 AIDS patients were in an identified risk group for acquiring AIDS. The distribution of the AIDS cases by disease category included: *Pneumocystis carinii* pneumonia (PCP), 62%; Kaposi's sarcoma (KS), 12%; both KS and PCP, 5%; and other opportunistic infections, 21%.

*AIDS – Continued*

Tests for T-cell subsets have been performed at CDC on blood specimens from 269 (75%) of the exposed HCWs. The mean T-helper/T-suppressor (Th/Ts) ratio for the initial whole blood sample from these HCWs was 2.2 with a range of 0.4-5.4 (normal range 1.0-3.9). One hundred eighty-three (68%) of these initial blood specimens were obtained within 180 days from the dates of exposures. Six-month and 12-month follow-up Th/Ts ratios were performed on 69 and six of these 269 HCWs, respectively. All Th/Ts ratios on follow-up specimens were within the normal range, including those from nine HCWs whose initial ratios were less than 1.0.

Serologic testing using the enzyme-linked immunosorbent assay (*1*) and the Western blot technique (*2*) for antibody to the human T-lymphotropic virus type III (HTLV-III) has been done, with specific informed consent, on 40 HCWs enrolled in the surveillance system. The mean duration between the date of exposure and the latest serum sample tested was 10.5 months (range 0-29 months; median 8.5 months). The types of exposures included: needlestick injuries (29), cuts with sharp objects (five), mucosal exposures (five), and contamination of open skin lesions (five). None of the HCWs tested were HTLV-III-antibody positive. However, with a sample size of 40, the upper limit of the 95% confidence intervals for this incidence of seropositivity (0%) is 7%.

*Reported by Acquired Immunodeficiency Syndrome Needlestick Surveillance Cooperative Group, Immunization Div, Center for Prevention Svcs, Div of Host Factors, Div of Viral Diseases, Hospital Infections Program, Center for Infectious Diseases, CDC.*

**Editorial Note:** Because HTLV-III can be transmitted among intravenous drug abusers by sharing needles and through transfusion of blood and blood products, there is concern that HTLV-III could be transmitted to HCWs by unintentional needlestick or other parenteral or mucous-membrane exposures. A recent report describes an HCW in England who is believed to have developed HTLV-III antibody following parenteral exposure to the blood of an AIDS patient (*3*). The HCW reportedly had none of the recognized risk factors for AIDS and remains asymptomatic.

To date, there are no reported cases of AIDS among HCWs in the United States that can be linked to a specific occupational exposure. Of the 8,218 AIDS patients reported to CDC as of February 11, 1985, 278 (3%) have been HCWs. All but 24 (9%) of these HCWs belong to known AIDS risk groups. Epidemiologic investigations have been completed on 17 of these 24 HCWs; four are currently under investigation, and three died before investigations were completed. In six of the 17 completed investigations, nonoccupational exposures were the most likely sources of infection. No known risk factors for infection were identified in the remaining 11 patients; however, specific occupational exposures to definite or suspected AIDS patients could not be documented.

In December 1984, CDC began testing sera from HCWs enrolled in the surveillance system for antibody to HTLV-III. Testing was performed only with the specific informed consent of enrolled personnel and the agreement of cooperating investigators. Initial results from this analysis and from other similar investigations (*4*) suggest the risk of transmission of HTLV-III infection from AIDS patients to HCWs may be very small. Thus, to accurately determine the true risk of transmission of HTLV-III from AIDS patients to HCWs, large cohorts of exposed HCWs must be studied. Additional studies with larger cohorts of HCWs are in progress, and CDC will continue immunologic and serologic testing of HCWs from whom institutional investigators have obtained informed consent.

Studies of seroprevalence of HTLV-III among exposed HCWs are of great value from an epidemiologic perspective. However, serologic testing of asymptomatic HCWs for HTLV-III antibody should be done only with informed consent, and a mechanism should exist for transmitting the test results to the HCW in an appropriate manner. The U.S. Public Health Service

*AIDS — Continued*

has developed specific recommendations for individuals, within or outside known risk groups for AIDS, who test positive for HTLV-III antibody (*5-7*). Health-care professionals should become familiar with and consider these recommendations when serologic testing of asymptomatic HCWs for HTLV-III antibody is contemplated.

Until additional data are available, HCWs should continue to follow previously published precautions when caring for persons with definite or suspected AIDS or when handling specimens from these patients (*8,9*).

*References*

1. Getchell JP, Kalyanaraman VS. Unpublished data.
2. Tsang VC, Peralta JM, Simons AR. Enzyme-linked immunoelectrotransfer blot techniques (EITB) for studying the specificities of antigens and antibodies seperated by gel electrophoresis. Methods Enzymol 1983;92:377-91.
3. Anonymous. Needlestick transmission of HTLV-III from a patient infected in Africa. Lancet 1984;I: 1376-7.
4. Hirsch MS, Wormser GP, Schooley RT, et al. Risk of nosocomial infection with human T-cell lymphotropic virus III (HTLV-III). N Engl J Med 1985;312:1-4
5. CDC. Prevention of acquired immune deficiency syndrome (AIDS): report of inter-agency recommendations. MMWR 1983;32:101-3.
6. CDC. Antibodies to a retrovirus etiology associated with acquired immunodeficiency syndrome (AIDS) in populations with increased incidences of the syndrome. MMWR 1984;33:377-9.
7. CDC. Provisional Public Health Service interagency recommendations for screening donated blood and plasma for antibody to the virus causing acquired immunodeficiency syndrome. MMWR 1985;34:1-5.
8. CDC. Acquired immune deficiency syndrome (AIDS): precautions for clinical and laboratory staffs. MMWR 1982;31:577-80.
9. CDC. Acquired immunodeficiency syndrome (AIDS): precautions for health-care workers and allied professionals. MMWR 1983;32:450-1.

## *Notice to Readers*

### Diphtheria-Tetanus-Pertussis Vaccine Shortage

On February 12, 1985, the American Academy of Pediatrics hosted a meeting to discuss ways of dealing with the current shortage of diphtheria-tetanus-pertussis (DTP) vaccine. The meeting was attended by representatives of the American Medical Association; American Academy of Family Practice; the vaccine manufacturer; state, county, and city health officials; the U.S. Department of Defense; and the U.S. Department of Health and Human Services.

Available information indicates that, overall, state health departments have approximately 2.3 months' supply of DTP vaccine on hand, but this vaccine is not uniformly distributed, with 18 states having supplies on hand of 1 month or less. Because of close inventory monitoring and prudent use of DTP reserves held by the manufacturer, vaccine has remained available in the public sector to date.

A survey conducted by eight different state health departments of 583 physicians indicated approximately one-third had had difficulties in obtaining DTP vaccine, and approximately one-half were following the current recommendations to defer the DTP doses for 18-month-old and 4- to 6-year-old children. In four states, where inventory estimates were made, physicians' current inventories ranged from 1.9 to 2.9 months' supply.

Lederle Laboratories reported the release for distribution of one DTP vaccine lot on February 12. This lot, about 35,000 vials (525,000 doses), has been divided among the company's

*DTP Vaccine – Continued*

five regional distribution centers located in Los Angeles, California; Atlanta, Georgia; Chicago, Illinois; Philadelphia, Pennsylvania; and Dallas, Texas. This vaccine is being distributed to health-care providers now.

Because currently available supplies of DTP vaccine are limited, the manufacturer is carefully coordinating the distribution of vaccine to both public and private health-care providers. Following extensive discussions, the group reached the following conclusions and recommendations:

1. Current information indicates that adequate supplies of DTP vaccine should become available in mid- or late 1985.
2. Until adequate supplies become available, it is important to continue the currently recommended practice of deferring the DTP vaccine doses for 18-month-old and 4- to 6-year-old children to assure that the initial three-dose immunization schedule for infants is met.
3. Practitioners should not administer partial doses of DTP vaccine in an effort to make the vaccine go further, since the degree of protection afforded by such partial doses is not certain.
4. Diphtheria-tetanus vaccine should not be substituted in the routine DTP vaccine schedule for 18-month-old and 4- to 6-year-old children.
5. It is important for practitioners to establish recall systems to ensure that children whose doses are deferred are recalled for the DTP vaccine they need once supplies become available.
6. Because some children will have their 18-month or "preschool dose" of DTP vaccine deferred this spring and summer, it may be necessary for day-care centers or school systems to allow provisional enrollment of such children until they can receive the needed doses.
7. As soon as adequate supplies become available, the Academy of Pediatrics and the U.S. Public Health Service will notify physicians so they can again resume the full DTP immunization schedule and recall those who need additional doses.

*Reported by U.S. Public Health Service Interagency Group to Monitor Vaccine Development, Production, and Usage.*

☆U.S. Government Printing Office: 1985-746-149/10039 Region IV

**DEPARTMENT OF HEALTH & HUMAN SERVICES**
Public Health Service
Centers for Disease Control
Atlanta GA 30333

**Official Business**
Penalty for Private Use $300

U.S. MAIL

Postage and Fees Paid
U.S. Dept. of H.H.S.
HHS 396

HHS Publication No. (CDC) 85-8017